

Product Standard

**Operating System and Languages:
COE Platform Standards**

The Open Group

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Product Standard

Operating System and Languages: COE Platform Standards

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Product Standard

NAME

COE Platform Standards

LABEL FOR LOGO

No label.

DESCRIPTION

This Product Standard covers the formal standards and specifications for which a COE Platform should be demonstrated as being in conformance. An application executing on a conforming COE Platform implementation shall have simultaneous access to all services associated with these standards.

CONFORMANCE REQUIREMENTS

A COE Platform implementation shall be in conformance with the following specifications and requirements.

Human-Computer Interface

- ISO/IEC 9945-2: 1993, Information Technology — Portable Operating System Interface (POSIX) — Part 2: Shell and Utilities

The following options shall be supported on a conformant system:

- The User Portability Utilities Option (POSIX2_UPE, ISO/IEC 9945-2: 1993, Section 5)
- The Full Terminal Operations Option (POSIX2_CHAR_TERM, ISO/IEC 9945-2: 1993, Section 2.14)

If the system supports software development, then the following options are also required:

- The Software Development Utilities Option (POSIX2_SW_DEV, ISO/IEC 9945-2: 1993, Section 6)
- The C-Language Development Utilities Option (POSIX2_C_DEV, ISO/IEC 9945-2: 1993, Annex A)

- CAE Specification, April 1995, Common Desktop Environment (XCDE): Services and Applications (ISBN: 1-85912-074-1, C323), published by The Open Group
- CAE Specification, April 1995, Common Desktop Environment (XCDE): Definitions and Infrastructure (ISBN: 1-85912-070-9, C324), published by The Open Group

The following general requirements shall apply:

- The system shall establish global settings for the *XFONTSDIR*, *XAPPLRESDIR*, and *XENVIRONMENT* environment variables.

- The system shall include an HTML browser that supports HTML 3.2. The system browser shall strictly comply with the COE User Interface Specifications¹ for web applications.
- The system browser shall strictly comply with the COE User Interface Specifications, and support the features provided to disadvantaged users from the COE User Interface Specifications.
- The system shall include documentation including manual pages, help files, or HTML-format pages for distribution with the COE Developer's Toolkit.

Portability Interface

- Operating System API
 - ISO/IEC 9945-1:1996, Information Technology — Portable Operating System Interface (POSIX) — Part 1: System Application Program Interface (API) [C Language]

The following restrictions on systems implementing ISO/IEC 9945-1:1996 are required by this Product Standard:

- Implementations shall provide C Standard Language-Dependent System Support (ISO/IEC 9899:1999, Programming Languages — C) [See ISO/IEC 9945-1:1996, Subclause 1.3.3]
- Implementations shall define the ISO/IEC 9945-1:1996 environment variable, *HOME*, in the environment for the login shell. [See ISO/IEC 9945-1:1996, Subclause 2.6]
- Implementations shall define the ISO/IEC 9945-1:1996 environment variable, *LOGNAME*, in the environment for the login shell. [See ISO/IEC 9945-1:1996, Subclause 2.6]
- Implementations shall support the ISO/IEC 9945-1:1996 runtime increasable value, {*NGROUPS_MAX*}, such that the value of {*NGROUPS_MAX*} is greater than or equal to eight (8). [See ISO/IEC 9945-1:1996, Subclause 2.8.3]
- Implementations shall support a minimum value of 25 for the ISO/IEC 9945-1:1996 variable {*CHILD_MAX*}. [See ISO/IEC 9945-1:1996, Subclause 2.8.4]
- Implementations shall support a minimum value of 20 for the ISO/IEC 9945-1:1996 variable {*OPEN_MAX*}. [See ISO/IEC 9945-1:1996, Subclause 2.8.4]
- Implementations shall support the functionality associated with *_POSIX_JOB_CONTROL* being defined. [See ISO/IEC 9945-1:1996, Subclause 2.9.3]
- Implementations shall support the functionality associated with *_POSIX_SAVED_IDS* being defined. [See ISO/IEC 9945-1:1996, Subclause 2.9.3]

1. COE User Interface Specifications, Version 4.0, 6 October 1999, CM 27986.

- i. Implementations shall support the functionality associated with `_POSIX_CHOWN_RESTRICTED` being defined with a value other than `-1`.
[See ISO/IEC 9945-1: 1996, Subclause 2.9.4]
- j. Implementations shall support the functionality associated with `_POSIX_NO_TRUNC` being defined with a value other than `-1`.
[See ISO/IEC 9945-1: 1996, Subclause 2.9.4]
- k. Implementations shall support the functionality associated with the setting of the group ID of a file (when it is created) to that of its parent directory.
[See ISO/IEC 9945-1: 1996, Subclause 5.3.1.2, 5.4.1.2, and 5.4.2.2]
- l. Implementations shall support, for terminal devices, the functionality associated with an interrupted `read()`, such that the return from `read()` when interrupted by a signal after successfully reading some data returns the number of bytes the system has read.
[See ISO/IEC 9945-1: 1996, Subclause 6.4.1.2]
- m. Implementations shall support, for terminal devices, the functionality associated with an interrupted `write()`, such that the return from `write()` when interrupted by a signal after successfully writing some data returns the number of bytes the system has written.
[See ISO/IEC 9945-1: 1996, Subclause 6.4.2.2]
- n. Implementations shall support the functionality associated with the symbols `CS7`, `CS8`, `CSTOPB`, `PARODD`, and `PARENB` defined for asynchronous general terminal interface devices.
[See ISO/IEC 9945-1: 1996, Subclause 7.1.2.4]

Implementations are not required to support, and Strictly Conforming COE Platform Applications shall not depend on, the presence of any of the options described in ISO/IEC 9945-1: 1996, Subclause 2.9.3 apart from `_POSIX_JOB_CONTROL` and `_POSIX_SAVED_IDS`.

- Communications Service API

- CAE Specification, February 1997, Networking Services (XNS), Issue 5 (ISBN: 1-85912-165-9, C523), published by The Open Group, Sockets portion only: Chapter 8, Sockets Interfaces; Chapter 9, Sockets Headers; Chapter 10, IP Address Resolution Interfaces; Chapter 11, IP Address Resolution Headers; and text in Chapter 1 applicable to the Sockets and IP Address Resolution interfaces and headers.

- Human-Computer Interaction API

- CAE Specification, May 1995, Window Management (X11R5): X Lib - C Language Binding (ISBN: 1-85912-088-1, C508), published by The Open Group
- CAE Specification, May 1995, Window Management (X11R5): X Toolkit Intrinsics (ISBN: 1-85912-089-X, C509), published by The Open Group
- CAE Specification, May 1995, Window Management (X11R5): File Formats and Applications Conventions (ISBN: 1-85912-090-3, C510), published by The Open Group
- Product Documentation, October 1997, Motif 2.1: Programmer's Guide (ISBN: 1-85912-134-9, M213), published by The Open Group

Programming Language Environment

Not applicable.

Interoperability

A COE Platform implementation shall be in conformance with the following Communications Service Interface specifications and meet the requirements listed:

- IETF Standard No. 3:
 - IETF RFC 1122, Requirements for Internet Hosts — Communication Layers, October 1989
 - IETF RFC 1123, Requirements for Internet Hosts — Application and Support, October 1989

- IETF Standard No. 7:
 - IETF RFC 793, Transmission Control Protocol, September 1981

In addition, TCP shall implement the PUSH flag and the Nagle Algorithm as defined in IETF Standard No. 3.

- IETF RFC 2001, TCP Slow Start, Congestion Avoidance, Fast Retransmit, and Fast Recovery Algorithms, January 1997

- IETF Standard No. 6:
 - IETF RFC 768, User Datagram Protocol, August 1980

The system shall support the UDP protocol such that broadcasts do not interfere with the unrelated behavior of the system.

- IETF Standard No. 5:
 - IETF RFC 791, Internet Protocol, September 1981
 - IETF RFC 950, Internet Standard Subnetting Procedure, August 1985
 - IETF RFC 919, Broadcasting Internet Datagrams, October 1984
 - IETF RFC 922, Broadcasting Internet Datagrams in the Presence of Subnets, October 1984
 - IETF RFC 792, Internet Control Message Protocol, September 1981
 - IETF RFC 1112, Host Extensions for IP Multicasting, August 1989

In addition, all implementations of IP must pass received Type-of-Service (TOS) values up to the transport layer as defined in IETF Standard No. 3

The following general requirements for the Internet Protocol apply:

- The system shall not require non-standard hostname conventions.
 - The system shall not require any specific IP configuration.
 - The system shall explicitly specify all network services by service name (conventionally in the **/etc/services** file). The system shall not provide any service that is not specified explicitly by name, and all services shall be available by name.
 - The system shall not rename well-defined ports or declare new port names which have the same port number as well-defined ports in the **/etc/services** file or its equivalent.
- IETF Standard No. 13:
 - IETF RFC 1034, Domain Names — Concepts and Facilities, November 1987

- IETF RFC 1035, Domain Names — Implementation and Specification, November 1987
 - A system may support IETF RFC 2136, Dynamic Updates in the Domain Name System (DNS Update), April 1997.
- If the system supports DNS, the system shall be configured to use DNS.
- IETF Standard No. 9:
 - IETF RFC 959, File Transfer Protocol (FTP), October 1985, with the following FTP commands mandated for reception: Store Unique (STOU), Abort (ABOR), and Passive (PASV)
 - IETF Standard No. 8:
 - IETF RFC 854, Telnet Protocol Specification, May 1983
 - IETF RFC 855, Telnet Option Specifications, May 1983
 - IETF Standard No. 15:
 - IETF RFC 1157, Simple Network Management Protocol (SNMP), May 1990
 - IAB Standard No. 16:
 - IETF RFC 1155, Structure and Identification of Management Information for TCP/IP-based Internets, May 1990
 - IETF RFC 1212, Concise MIB Definitions, March 1991
 - IAB Standard No. 17:
 - IETF RFC 1213, Management Information Base for Network Management of TCP/IP-based Internets: MIB-II, March 1991
 - IETF RFC 1757, Remote Network Monitoring Management Information Base, February 1995
 - IETF RFC 951, Bootstrap Protocol (BOOTP), September 1985
 - IETF RFC 2132, DHCP Options and BOOTP Vendor Extensions, March 1997
 - IETF RFC 2131, Dynamic Host Configuration Protocol, March 1997
 - IETF RFC 1542, Clarifications and Extensions for the Bootstrap Protocol, October 1993
 - IETF RFC 1305, Network Time Protocol (Version 3) Specification, Implementation, and Analysis, March 1992
 - The system shall support one or more of:
 - IAB Standard No. 47: the Serial Line Internet Protocol (SLIP)
 - IAB Standard No. 51: the Point-to-Point Protocol (PPP)
 - Remote file system support over Network File System, as both a server and client, as specified in Protocols for Interworking: XNFS, Version 3W.²
 - The system may support the Network Information Service (NIS+) protocol. If the system supports NIS+, the system shall be configured to use NIS+.

2. Technical Standard, February 1998, Protocols for Interworking: XNFS, Version 3W (ISBN: 1-85912-184-5, C702), published by The Open Group.

- If the system does not support the DNS or NIS+ protocols, the system shall not be affected by the protocol's environmental presence.

OPERATIONAL ENVIRONMENT

Not applicable.

PORTABILITY ENVIRONMENT

Not applicable.

OVERRIDING STANDARDS

All formal standards included within this Product Standard are specified by a direct reference to the formal standard document itself.

INDICATORS OF COMPLIANCE

The following lists the Indicators of Compliance for the constituent parts of this Product Standard. In some instances where more than one Indicator of Compliance is available, there are acceptable alternatives listed.

- Human-Computer Interface
 - Either:
 - The Open Group Open Brand Certificate for Commands and Utilities
 - or:
 - A Test Report from the latest authorized version of the VSC5 or VSC5-Lite Test Suite with an accompanying Conformance Statement
- Operating System API
 - Either:
 - A NIST/IEEE FIPS 151-2 Certificate
 - or:
 - The Open Group Open Brand Certificate for Internationalized System Calls and Libraries Extended, or Internationalized System Calls and Libraries Extended V2
 - or:
 - A Test Report from the latest authorized version of the VSX-PCTS Test Suite with an accompanying Conformance Statement
 - or:
 - An LSB 1.2 or 1.3 Certificate
- Human-Computer Interaction API
 - Either:
 - The Open Group Open Brand Certification for the X Window System
 - or:
 - A Test Report from the latest authorized version of the VSW5 Test Suite with an accompanying Conformance Statement

Product Standard

Either:

— The Open Group Open Brand Certificate for Motif

or:

— A Test Report from the latest authorized version of the VSM Test Suite with an accompanying Conformance Statement

- Interoperability

— The Open Group Open Brand Certificate for Internet Server (optional)

— A report from the Network File System (NFS) Validation Procedure

— A report from the World Wide Web (WWW) Interoperability Demonstration Validation Procedure

— A report from the File Transfer Protocol (FTP) Interoperability Demonstration Validation Procedure

— A report from the Simple Mail Transport Protocol (SMTP) Interoperability Demonstration Validation Procedure

MIGRATION

Not applicable.

